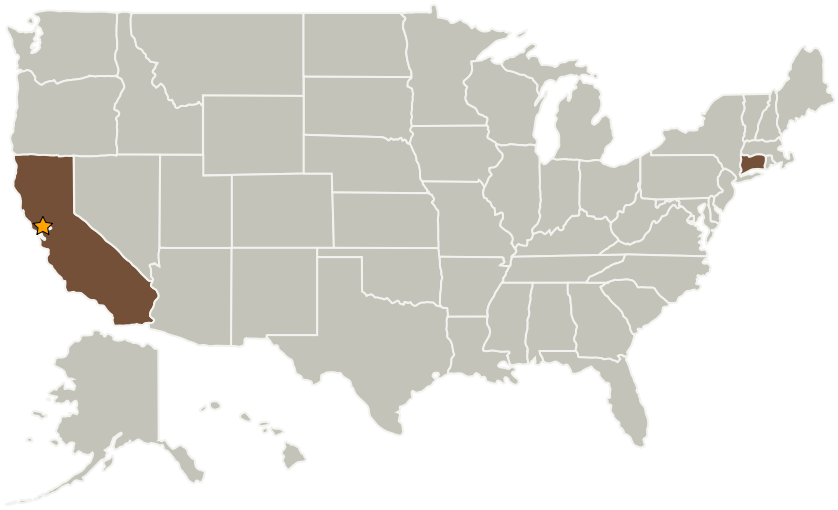
Engineering Next Generation Launch Systems for Supportability, Phase II

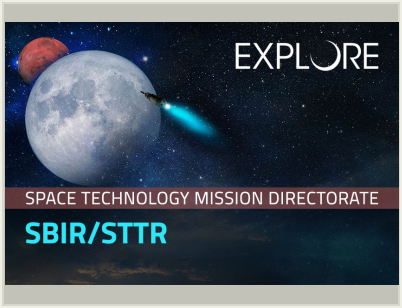
Completed Technology Project (2008 - 2010)

Project Introduction

In order to meet the challenges of high probability of mission success for space exploration, ground support system for various launch operations that responds rapidly to system events and anomalies is essential. In addition, the vast amount monitored parameters (around 50,000) for ground support system requires systematically supportablity analysis and trade-off studies for sensor optimization. Qualtech Systems, Inc. (QSI), in cooperation with Vanderbilt University, proposes to develop an integrated ground support system for addressing the ground support health management problem. The proposed solution provides supportability analysis for LOX system and real-time monitoring for select target system (e.g. hydraulic system). The supportability analysis uses QSI's TEAMS modeling of a candidate Liquid Oxygen (LOX) system which covers ground fueling facilities, mobile launcher and launch pad. An efficient sensor optimization schemes is developed to evaluate current available sensors and proposed upgrade sensor groups. Real-time monitoring collect sensor data from candidate system to the integrated test layer (wherein advanced tests are designed) and passed to the real-time diagnostic reasoner.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Qualtech Systems, Inc.	Supporting Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB)	Rocky Hill, Connecticut

Primary U.S. Work Locations	
California	Connecticut

Project Transitions

April 2008: Project Start

April 2010: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
  - TX13.1 Infrastructure Optimization
    - TX13.1.2 Launch/Test/Ops Site Management